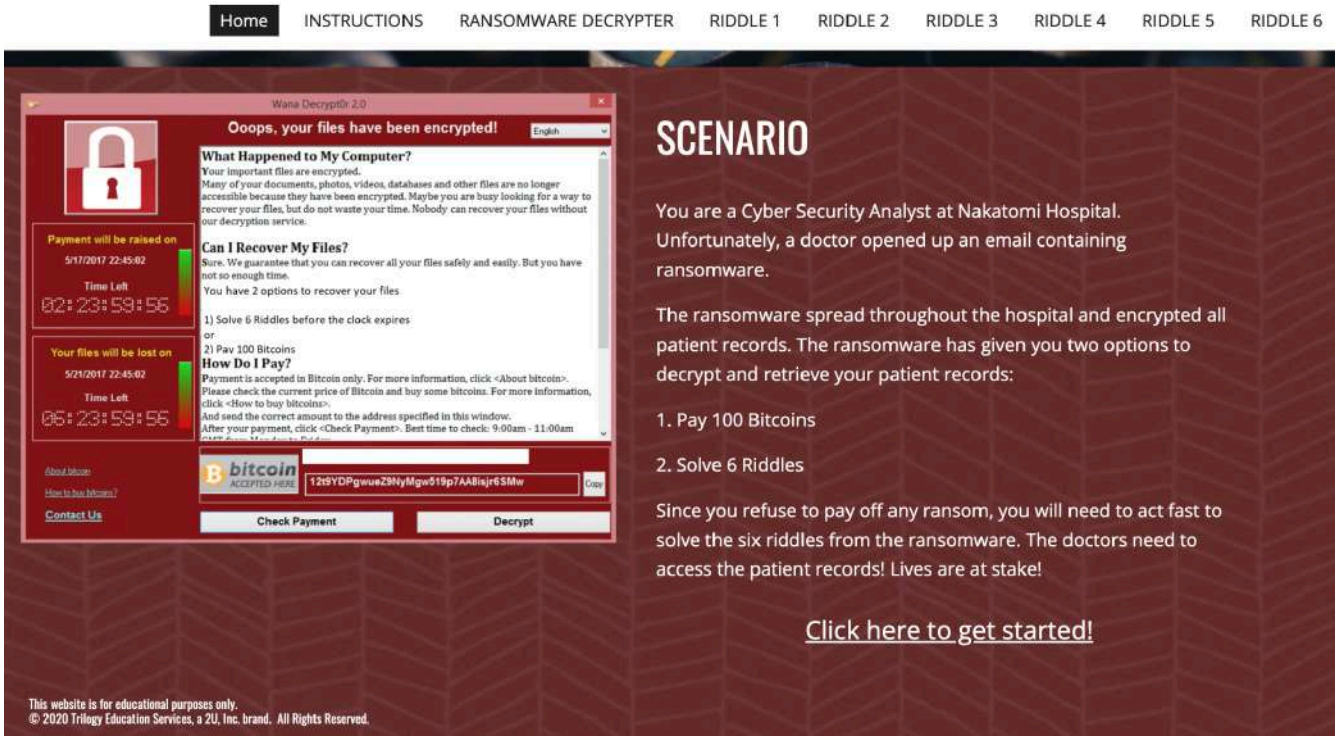
Cybersecurity

Cryptography Challenge



Homepage

Scenario

You are a Cybersecurity Analyst at Nakatomi Hospital. Unfortunately, a doctor opened up an email containing ransomware.

The ransomware spread throughout the hospital and encrypted all patient records. The ransomware has given you two options to decrypt and retrieve your patient records:

1. Pay 100 Bitcoins

2. Solve 6 Riddles

Since you refuse to pay off any ransom, you will need to act fast to solve the six riddles from the ransomware. The doctors need to access the patient records! Lives are at stake!

Instructions

The ransomware encrypted the patient records and provided you with six different riddles. These riddles can be found in the above toolbar. To solve each riddle, cryptography concepts will need to be applied.

Once the riddle has been solved, submit your answer on the bottom of each riddle page. If the correct answer is provided, a key will be given.

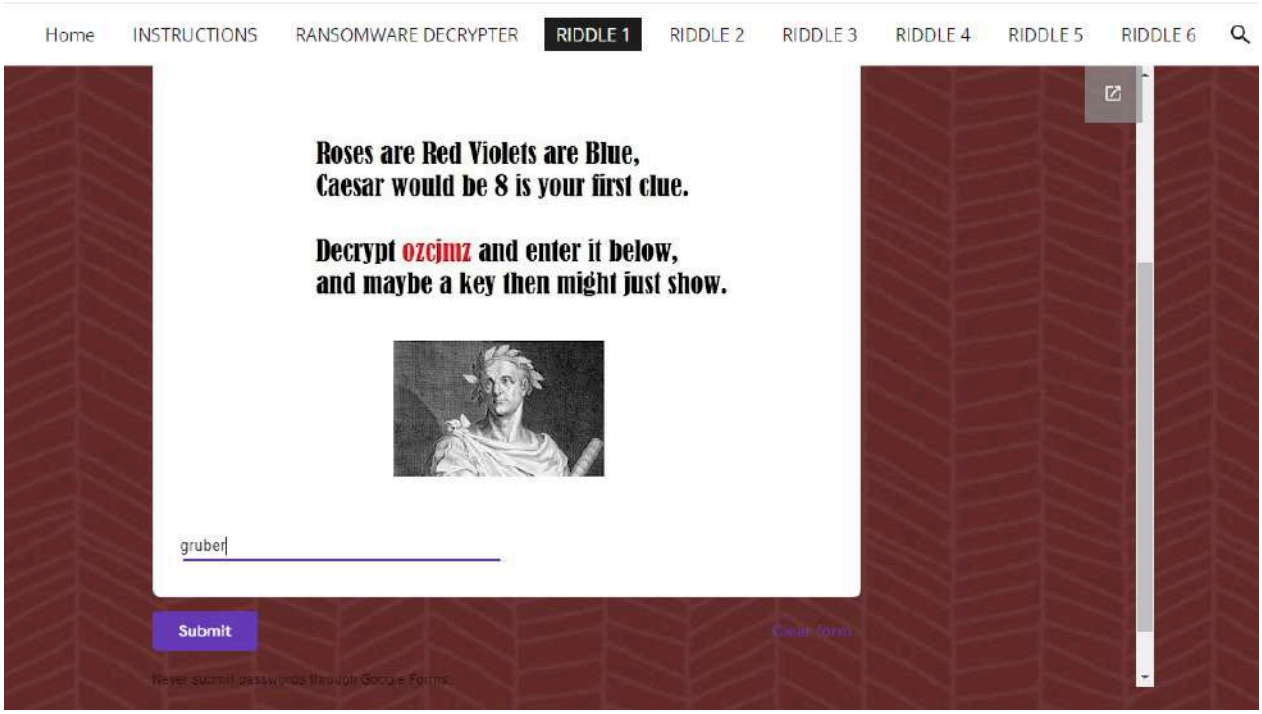
Keep track of all of your keys. Once they are all obtained, select the RANSOMWARE DECRYPTER link above and enter in all of your keys!

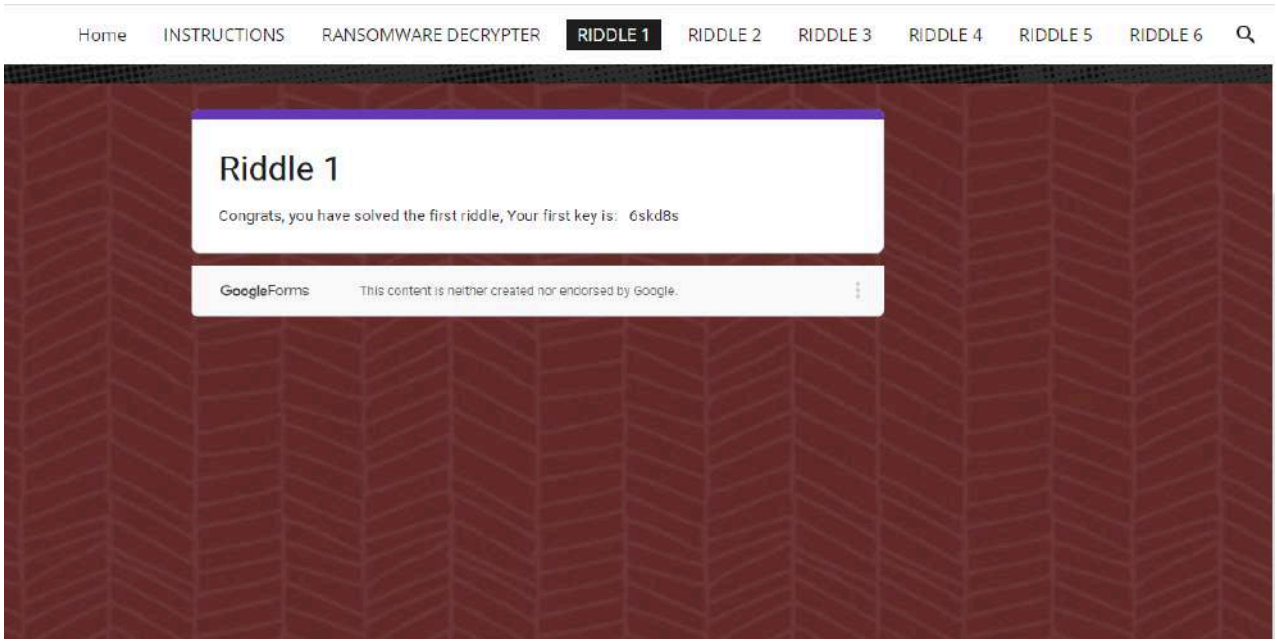
Good luck and act fast. The Nakatomi patients are counting on you!

Riddle 1

Roses are Red, Violets are Blue,
Caesar would be 8 is your first clue.

Decrypt **ozcjmz** and enter it below,
and maybe a key then might just show.



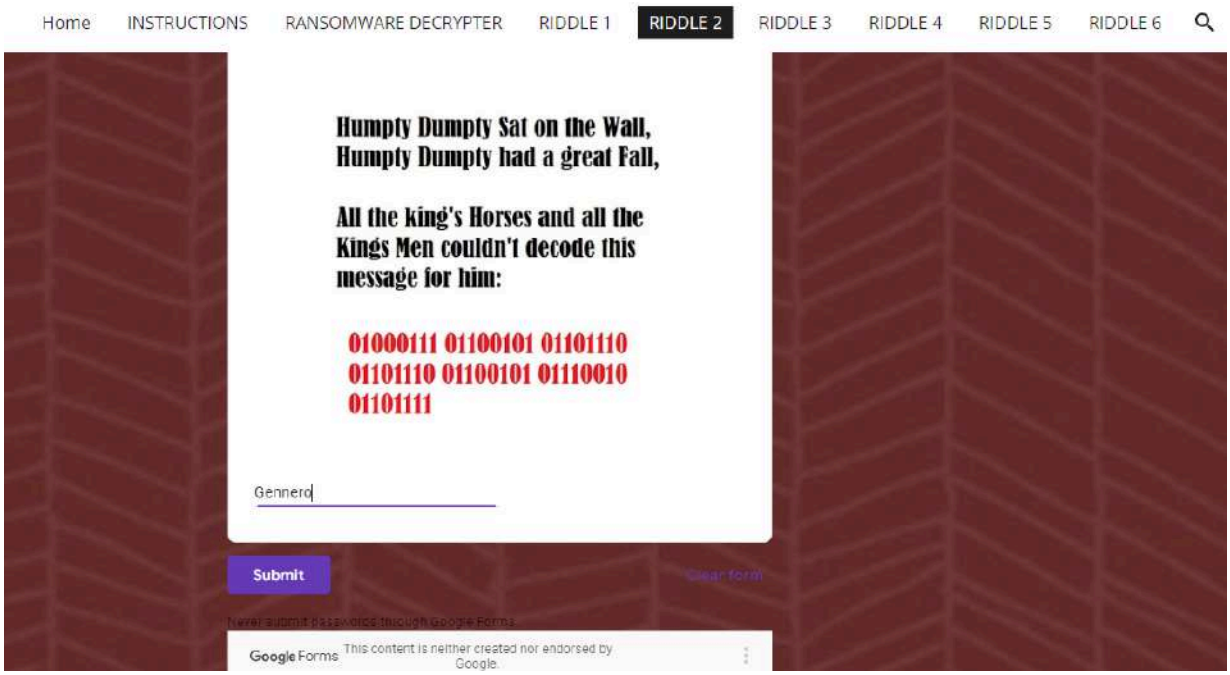


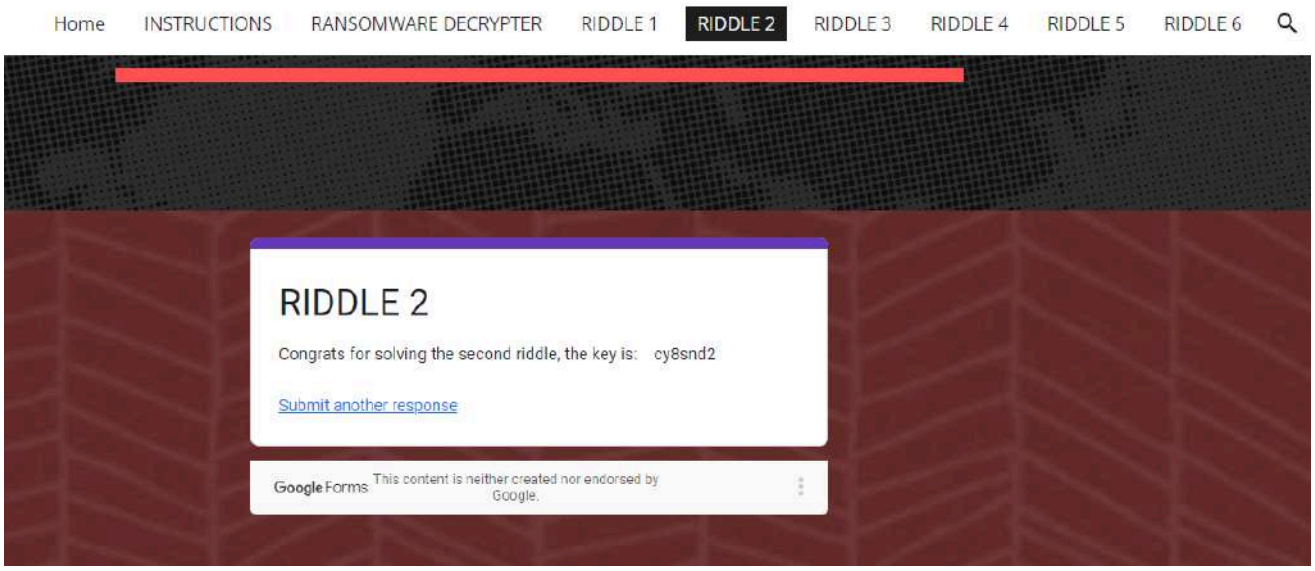
Riddle 2

Humpty Dumpty Sat on the Wall,
Humpty Dumpty had a great Fall,

All the king's Horses and all the
King's Men couldn't decode this
message for him:

01000111 01100101 01101110
01101110 01100101 01110010
01101111





Riddle 3

I'm a little Cipher,
short and sweet.

Here is my vector,
and also my key

When I get all steamed up,
hear me shout!

Just use OpenSSL to figure me out.

Cipher Text:

4qMOIvwEGXzvkMvRE2bNbg==

Key:

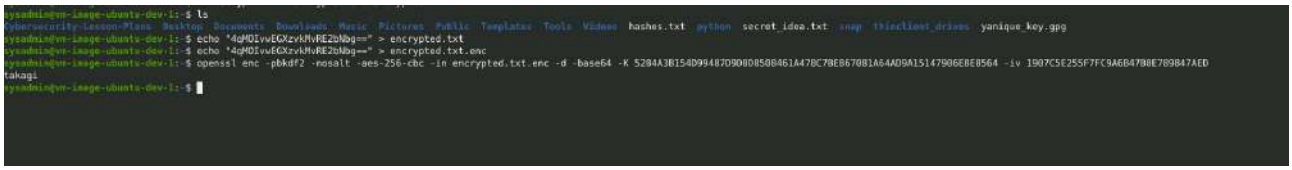
5284A3B154D99487D9D8D8508461A478C7BEB67081A64AD9A15147906E8E8564

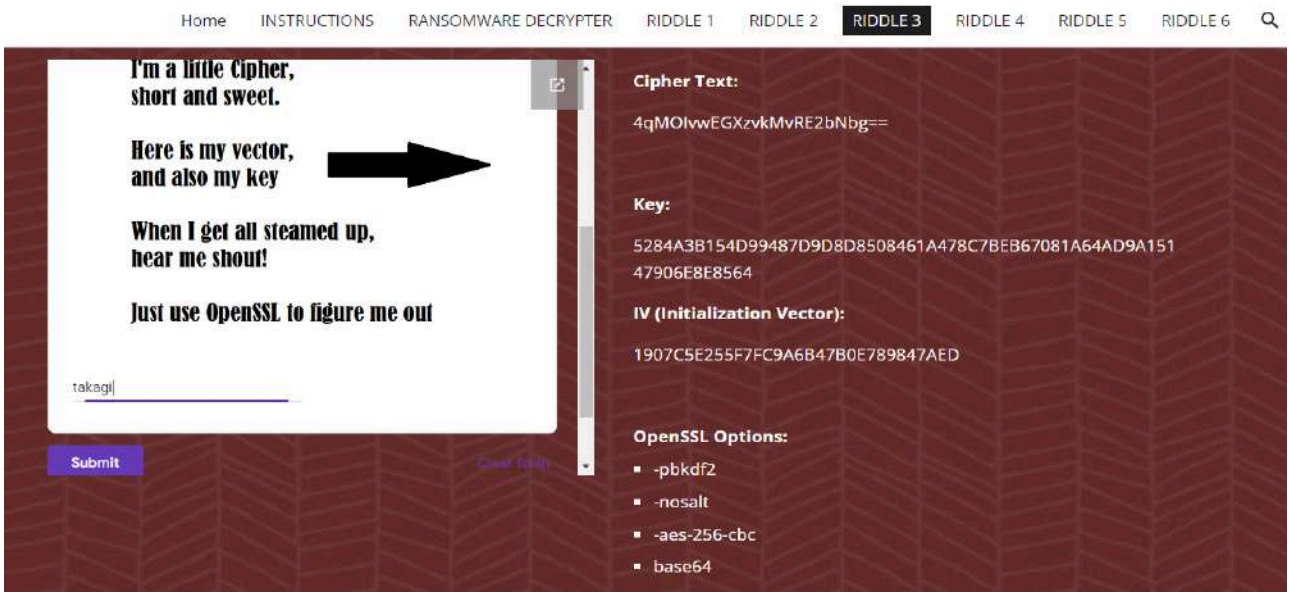
IV (Initialization Vector):

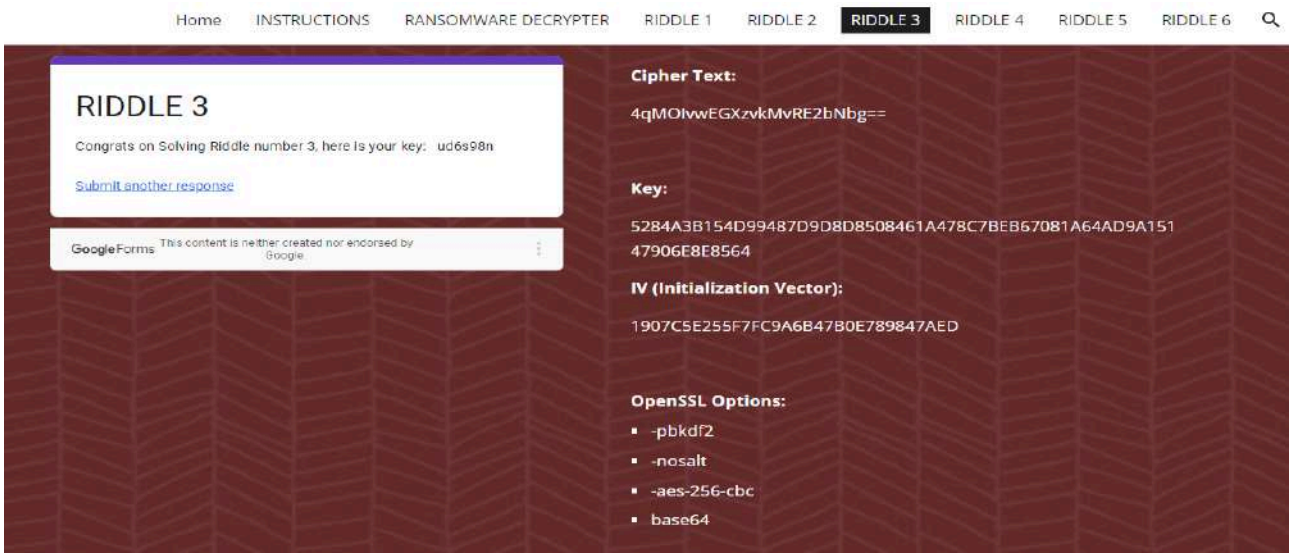
1907C5E255F7FC9A6B47B0E789847AED

OpenSSL Options:

-pbkdf2
-nosalt
-aes-256-cbc
base64





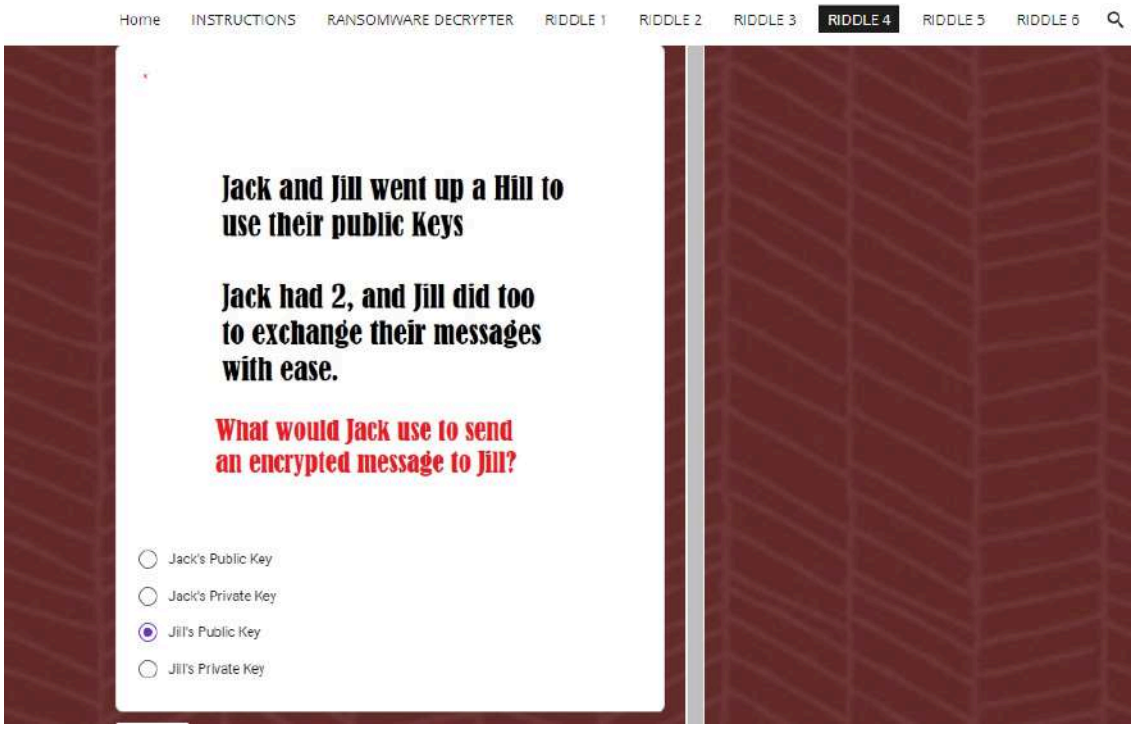


Riddle 4

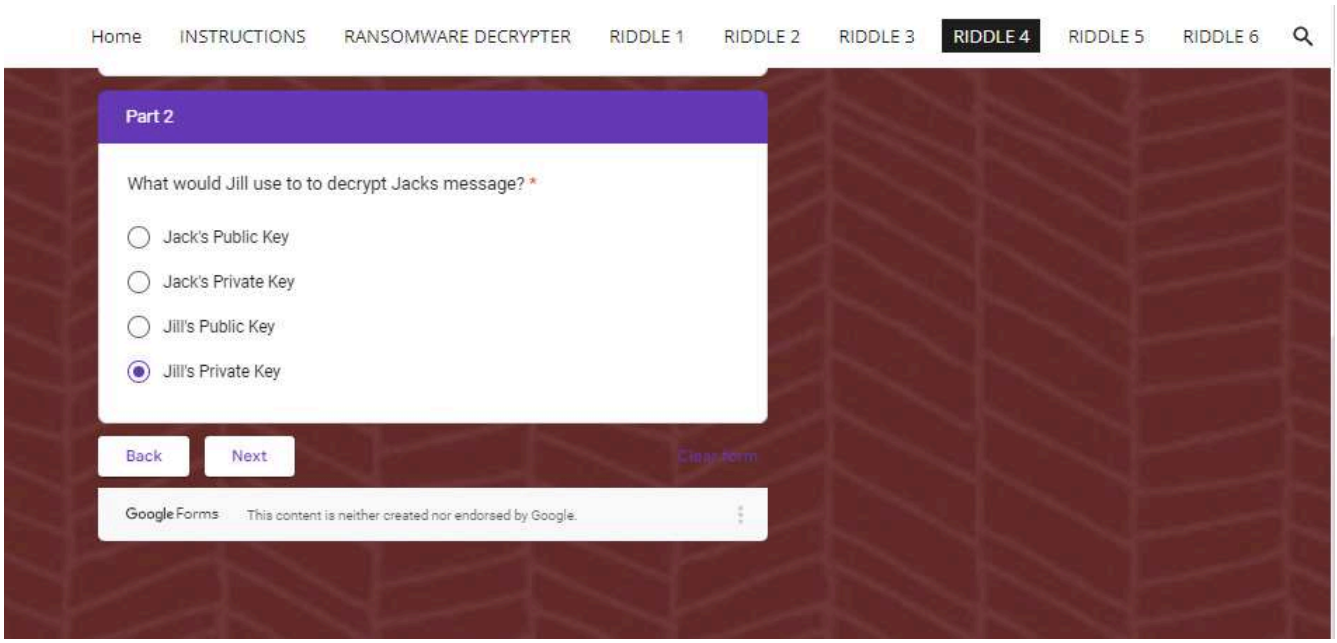
Jack and Jill went up a Hill to
use their public Keys.

Jack had 2, and Jill did too
to exchange their messages
with ease.

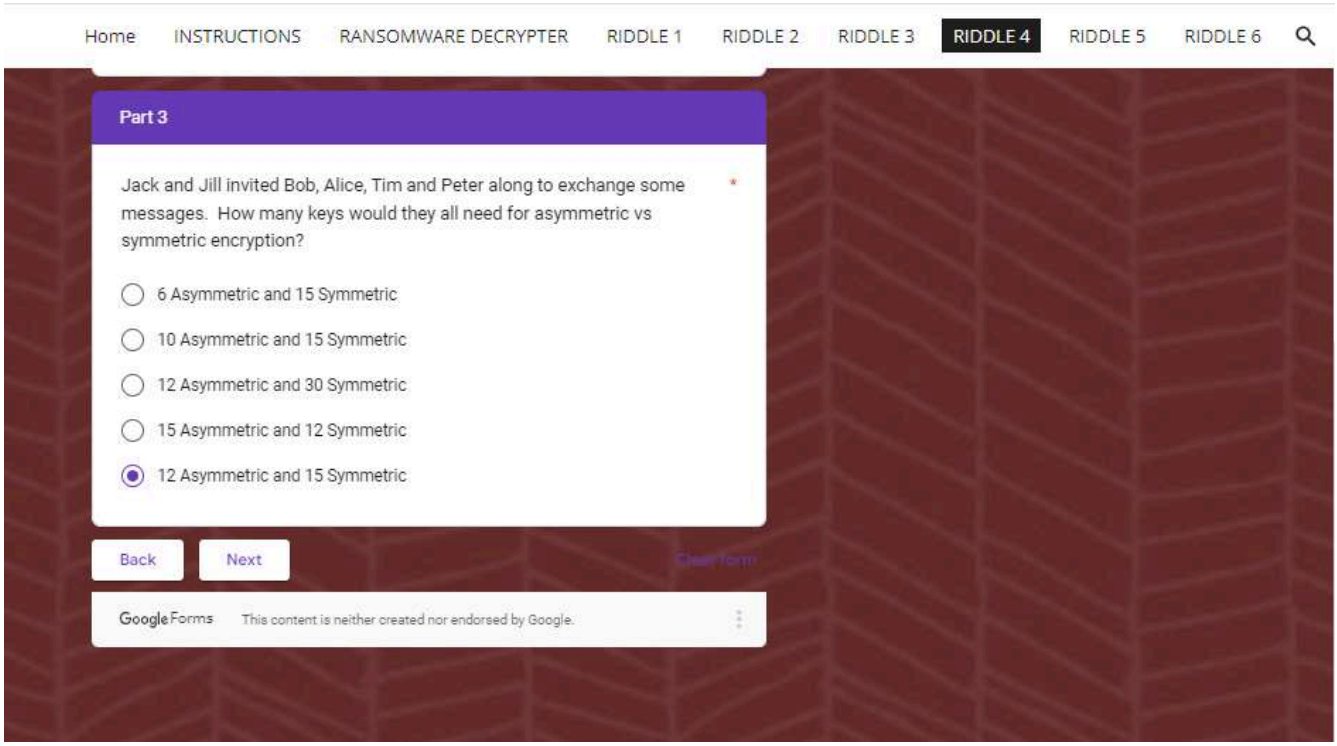
**What would Jack use to send
an encrypted message to Jill?**



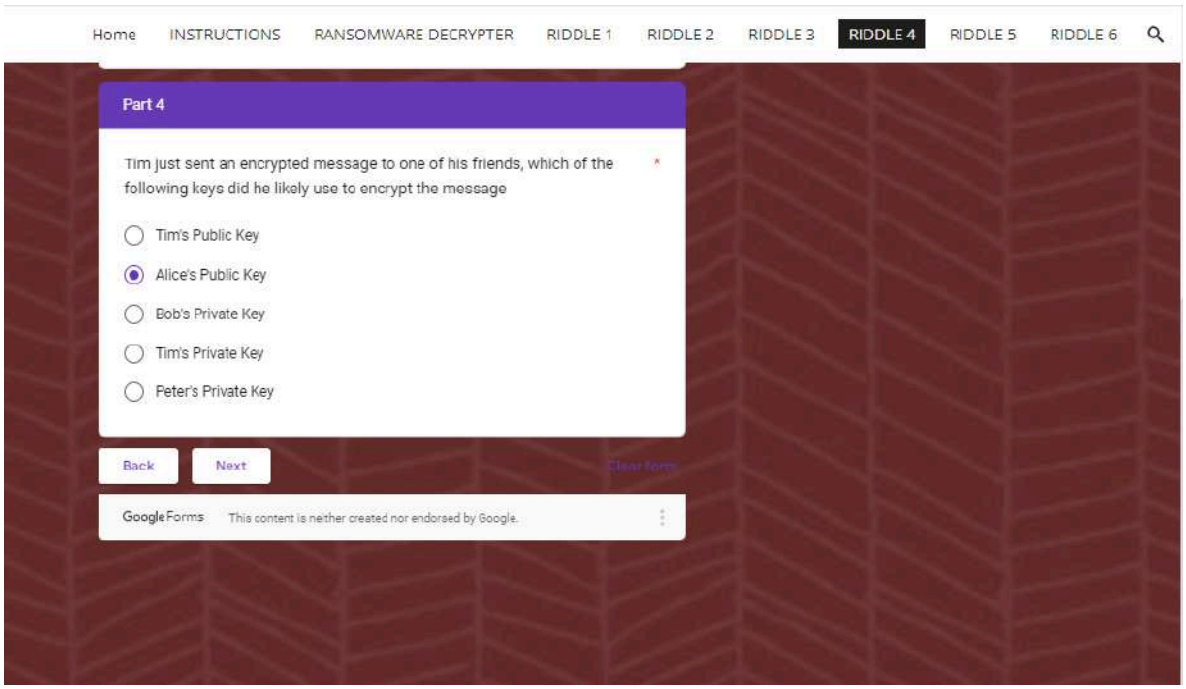
What would Jill use to decrypt Jack's message?

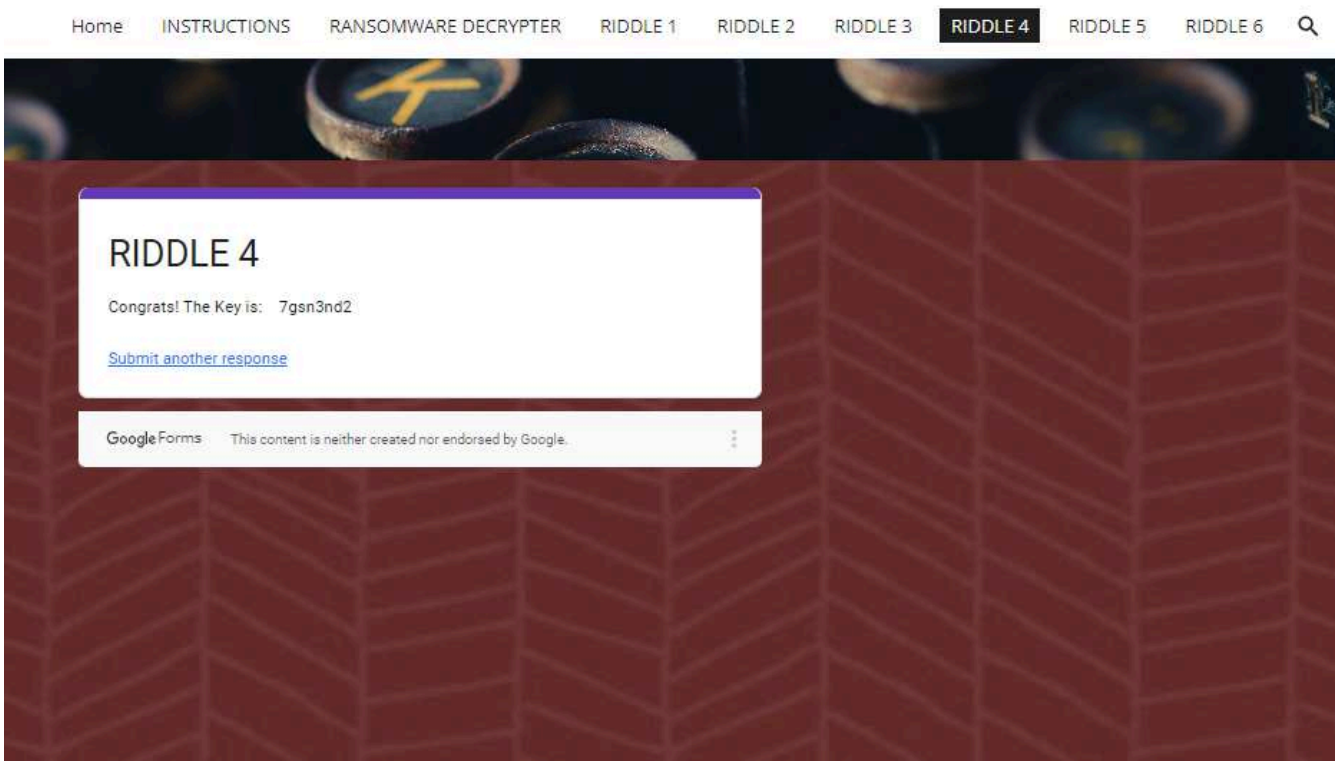


Jack and Jill invited Bob, Alice, Tim, and Peter along to exchange some messages. How many keys would they all need for asymmetric vs symmetric encryption?



Tim sent an encrypted message to one of his friends. Which of the following keys did he likely use to encrypt the message?





Riddle 5

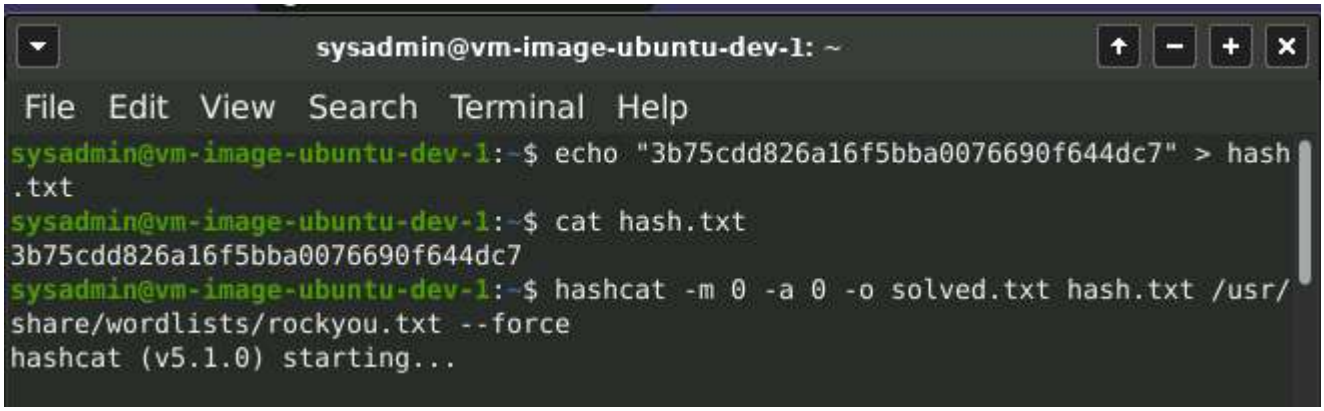
Hey diddle diddle,
the cat and the fiddle,
The cow jumped over the moon.

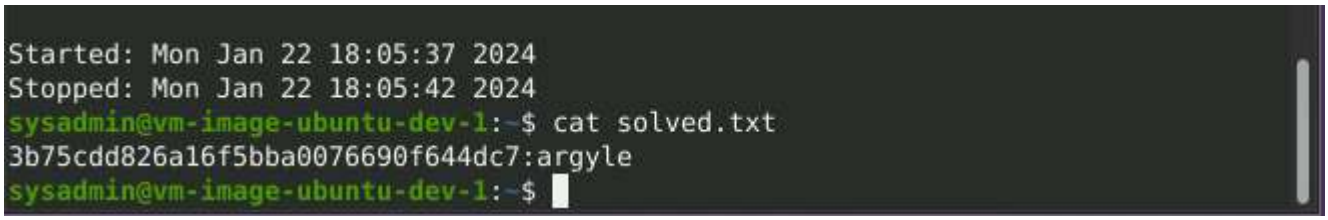
The little dog laughed
when it found this MD5 hash,

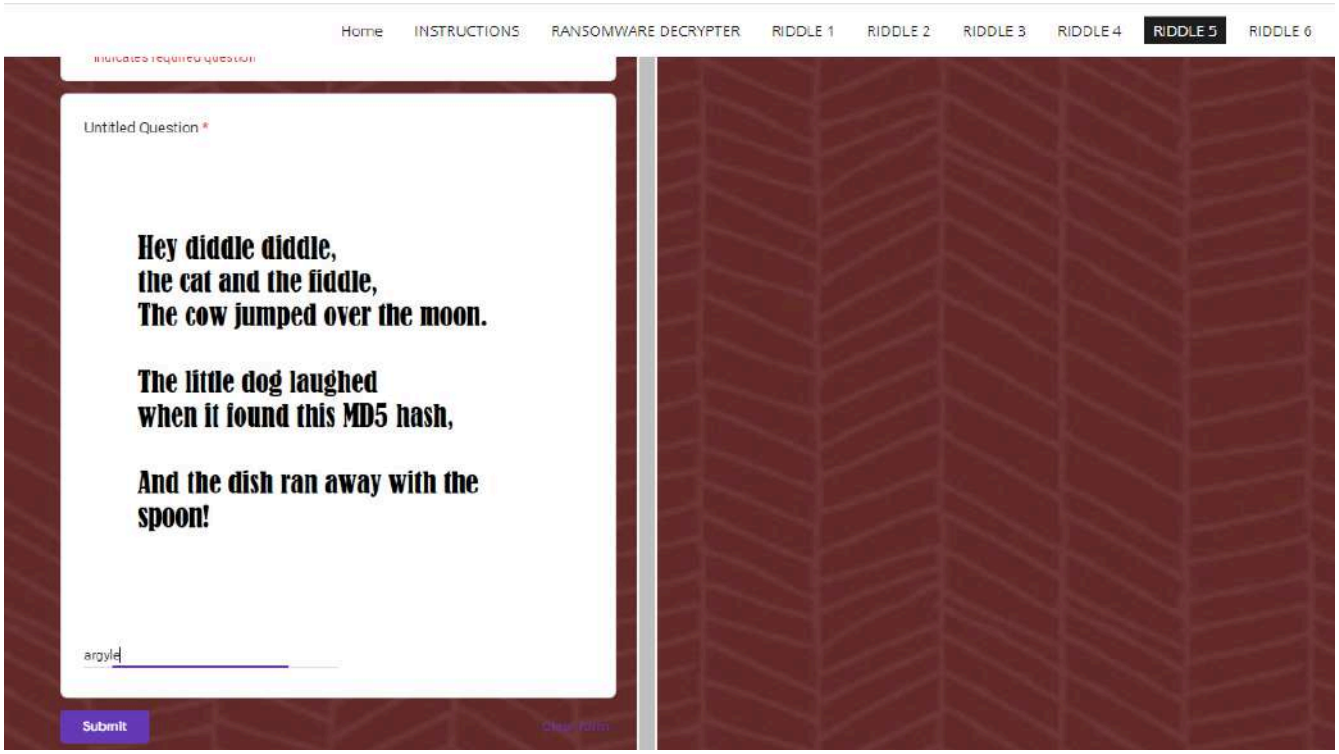
And the dish ran away with the spoon!

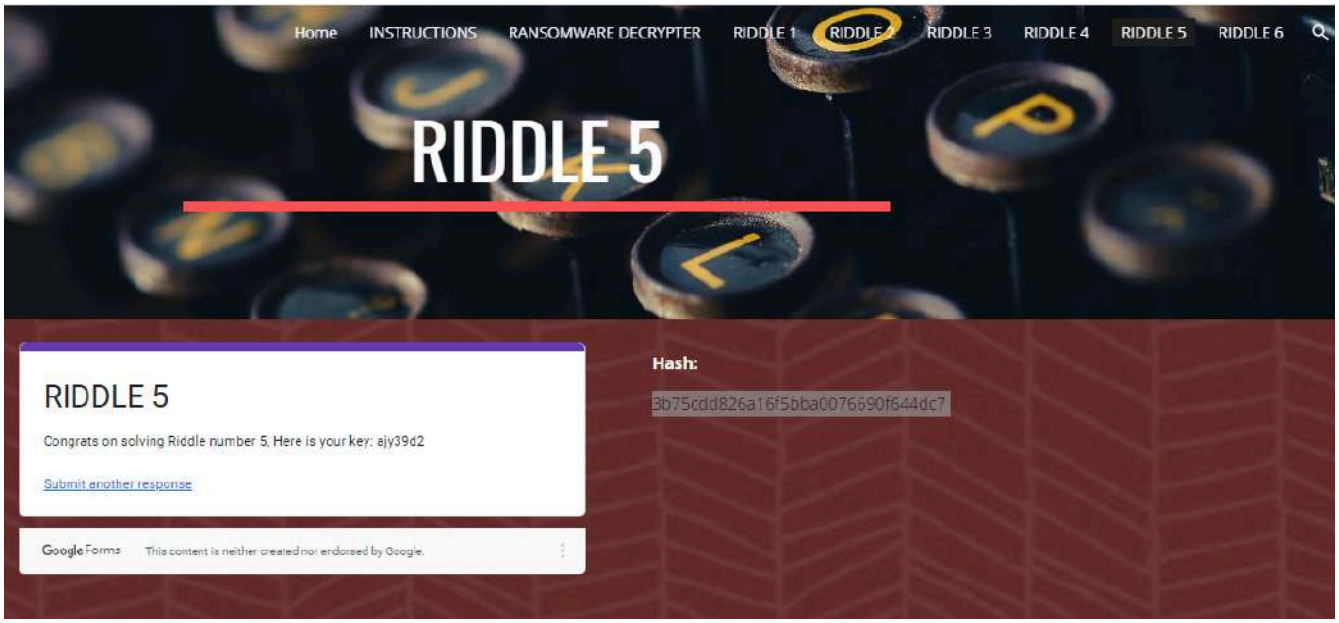
Hash:

3b75cdd826a16f5bba0076690f644dc7









Riddle 6

Mary had a secret code,
Hidden in a photo,
And everywhere that photo went,
The code was sure to go.

She wrote the passphrase on the
book, to access the code
You just need to use some stego
tricks and the secret will show.